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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/029,319	10/17/2001	William N. Partlo	2001-0095-1	4334

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12/10/2003

William Cray
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San Diego, CA 92127

EXAMINER

MONBLEAU, DAVIENNE N

ART UNIT	PAPER NUMBER
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2878

DATE MAILED: 12/10/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/029,319

Applicant(s)

CYMER, I NC

Examiner

Davienne Monbleau

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 September 2003.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 and 9-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 9-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 October 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

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DETAILED ACTION

Response to Amendment

The Amendment filed on 9/11/03 has been entered. Claim 20 was added. Claims 1-6 and 9-20 are pending.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim 20 is rejected under 35 U.S.C. 102(e) as being anticipated by Hofmann et al. (US 6,034,984).

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention “by another,” or by an appropriate showing under 37 CFR 1.131.

Hofmann et al. disclose in Figure 1b an electric discharge laser comprising a laser chamber (102), a laser gas (108), two longitudinal electrodes (118 and 120), a discharge region

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(122), and a tangential fan (140). Hofmann et al. disclose in the abstract that said tangential fan may be made by machining blade members and hub members as a monolithic unit from a single block. Hofmann et al. disclose in Figure 2a that said tangential fan comprises a plurality of blade members (214) and a plurality of hub members (212) defining fan blade segments (210).

Hofmann et al. disclose in column 6 line 57- to column 7 line 42 that said blade members (214) may form a double helix pattern and that said blade members (214) of a section (210) are offset by a circumferential angle relative to blade members (214) of adjacent sections (210). Thus, segments of the same helix pattern are not in helical alignment. It is inherent that there is a pulse power source in order for the laser gas to produce a discharge and output a laser beam.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically taught or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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Claims 1-6 and 9-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hofmann et al. (U.S. Patent No. 6,034,984) in view of Larson et al. (U.S. Patent No. 5,770,933). Regarding Claim 1, Hofmann et al. teach in Figure 1b an electric discharge laser comprising a laser chamber (102), a laser gas (108), electrodes (118 and 120), a discharge region (122), and a tangential fan (140). It is inherent that there is a pulse power source. Hofmann et al. further teach in Figure 2a that said fan comprises a plurality of blade members (214) and a plurality of hub members (212) defining fan blade segments (210), wherein said blade members are at an acute angle with said rotation axis; in column 5 lines 6-56 that said blade members minimize adverse effects in said discharge region of reflection of discharge generated acoustic shock waves from said blade members; in column 7 lines 37-42 a double helix pattern; in column 6 lines 5-7 that said fan has 18 sections, and hence 18 hub members; in the abstract machining said blade members and said hub members as a monolithic unit from a single block; in column 1 lines 59-61 that it is known in the art that fans have may have a rotation rate of 3800 rpm. Hoffman et al. teaches in columns 9 and 10 machining a particular diameter. Determining the optimum diameter involves routine skill in the art. Hoffman et al. do not teach a pulse repetition of greater than 3,700 Hz. Larson et al. teach in column 3 lines 26-38 that achieving high repetition pulse rates is dependant upon a high rotation of the fan. It would have been obvious to one of ordinary skill in the art at the time of the invention to use the high rotation rate of the fan to produce a high pulse repetition rate, as taught by Larson et al., to create smaller integrated circuits using lithography techniques. (See Larson et al. column 1 lines 12-34).

Regarding Claim 2, Hofmann et al. teach in Claim 3 an odd number of blade members.

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Regarding Claim 3, Hofmann et al. teach in Claim 4 that said blade member has an airfoil cross-sectional shape.

Regarding Claim 4, Hofmann et al. teach in Claim 5, that said hub members are disposed transversely relative to said rotation axis, and that the number and axial placement of said hub members controls the natural frequency of bending mode vibration of said fan.

Regarding Claim 5, Hofmann et al. teach in Claim 6 that the natural frequency of bending mode vibration of said fan is greater than twice the rotation frequency of said fan.

Regarding Claim 6, Hofmann et al. teach in Claim 7 the material of said fan.

Regarding Claim 9, Hofmann et al. teach in Figure 4f that said blade members have a cross section corresponding to an arc of a circle.

Regarding Claim 10, Hofmann et al. does not teach the radii of the circle cross-section. However, it would have been obvious to one of ordinary skill in the art at the time of the invention to use specific radii since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Regarding Claims 11 and 13, Hofmann et al. does not teach that said blades are positioned asymmetrically within each section. However, Hofmann et al. does teach in column 5 to column 6 that asymmetrical blade configurations minimize in-phase reflection of shock energy. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use asymmetrically positioned blade members, as taught by Hofmann et al., to reduce laser output energy fluctuations.

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Regarding Claims 12 and 14, Hofmann et al. teach in column 5 line 66 to column 6 line 4 that said blade members in adjacent sections are positioned asymmetrically.

Regarding Claim 15, Hofmann et al. teach in Figure 4f that said blade members have first and second circular arc cross sections defining a convex surface and a concave surface, respectively.

Regarding Claims 16 and 17, Hofmann et al. does not teach the respective radii and origin of said circle cross-sections. It would have been obvious to one of ordinary skill in the art at the time of the invention to use specific radii since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Regarding Claims 18 and 19, Hofmann et al. teach in Figure 3c that said blade elements comprise two cylindrical surfaces (320), and a pointed leading edge.

Response to Arguments

Applicant's arguments filed 9/11/03 have been fully considered but they are not persuasive.

In particular, the Applicant argues that the cited prior art (Larson) does not address nor propose any solution to the problem addressed by the Applicant's claimed invention. Larson et al. teach in column 3 lines 26-38 that achieving high repetition pulse rates is dependant upon a high rotation of the fan. Additionally, the Applicant agrees on page 8 that it is "well known that the more gas circulated and cooled, i.e., the higher the fan speed and the more efficient the fan and the cooling system, the higher the rate at which the gas discharge laser can be efficiently

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discharged. Thus, it would have been obvious to use the high rotation rate of the fan to produce a high pulse repetition rate, as taught by Larson et al., since there is a demand for higher pulse rate gas lasers (see Larson et al. column 1 lines 12-56). Furthermore, the fact that the Applicant uses the high pulse repetition rate for a different purpose does not alter the conclusion that its use in a prior art device would be prima facie obvious from the purpose disclosed in the reference.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Davienne Monbleau whose telephone number is 703-306-5803. The examiner can normally be reached on Mon-Fri 9:00 am to 5:00 pm.


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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dave Porta can be reached on 703-308-4852. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

Danielle Marbleau

DNM


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